Contribution ID: **264** Type: **Invited talk**

Overview of Axion Searches

Tuesday 25 July 2017 11:40 (30 minutes)

The nature of dark matter is one of the great mysteries of modern physics and may be the result of new particles beyond the standard model. The Axion, originally conceived as a solution to the strong-CP problem in nuclear physics, is one well-motivated candidate. In 1983 Pierre Sikivie proposed an experimental search technique, known as an axion haloscope, that relies on a large microwave cavity immersed in a strong static magnetic field to resonantly convert dark matter axions to detectable photons. This became the foundation of the Axion Dark Matter eXperiment (ADMX), which has recently began taking data at unprecedented sensitivity in the classical QCD-axion mass range of several
micro-eV. In addition, several new detection techniques have been proposed to cover a large span of potential axion masses beyond that of the classical window. There also exist a set of experiments that look for axions generated in the sun, from intense laser sources and from modifications to force of gravity at short range. In this talk I will describe the history
of axion searches and give a survey of the R&D efforts currently underway to explore
the entire potential axion mass window.

Author: CAROSI, Gianpaolo (Lawrence Livermore National Laboratory)

Presenter: CAROSI, Gianpaolo (Lawrence Livermore National Laboratory)

Session Classification: Axions

Track Classification: Dark Matter